We claim:

1. A process for producing foam beads from thermoplastic polymers, encompassing the stages of

   a) addition of a blowing agent to a thermoplastic polymer melt,
   b) cooling and extrusion, through a die, of the polymer melt comprising blowing agent,
   c) cutting of the polymer melt comprising blowing agent downstream of the die at reduced pressure with foaming to give foam beads,

   which comprises using a blowing agent in which water and a solubilizer or adsorbent are present.

2. A process as claimed in claim 1, wherein the solubilizer used comprises an aliphatic alcohol, ketone, ether, or ester.

3. A process as claimed in claim 1 or 2, wherein the adsorbent used comprises aluminum hydroxide, phyllosilicate, or zeolite.

4. A process as claimed in any of claims 1 to 3, wherein the blowing agent also comprises CO_2, N_2, or an aliphatic, halogenated, or halogen-free hydrocarbon.

5. A process as claimed in claim 4, wherein the blowing agent used comprises a mixture of
   from 0.1 to 3% by weight of water,
   from 0.1 to 3% by weight of an alcohol or ketone, and
   from 1 to 10% by weight of an aliphatic, halogenated, or halogen-free hydrocarbon, or CO_2.

6. A process as claimed in any of claims 1 to 5, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.

7. A process as claimed in any of claims 1 to 6, wherein the thermoplastic polymer has a bi- or multimodal molecular weight distribution.

8. A process as claimed in any of claims 1 to 7, wherein the thermoplastic polymer used comprises polystyrene with a polydispersity M_w/M_n of at least 2.5.

9. A process as claimed in any of claims 1 to 8, wherein, prior to or after addition of the blowing agent, an IR absorber is added to the thermoplastic polymer melt.

10. A process as claimed in claim 9, wherein the IR absorber used comprises from 0.1 to 2.5% by weight, based on the thermoplastic polymer melt, of graphite, carbon black, or aluminum powder.